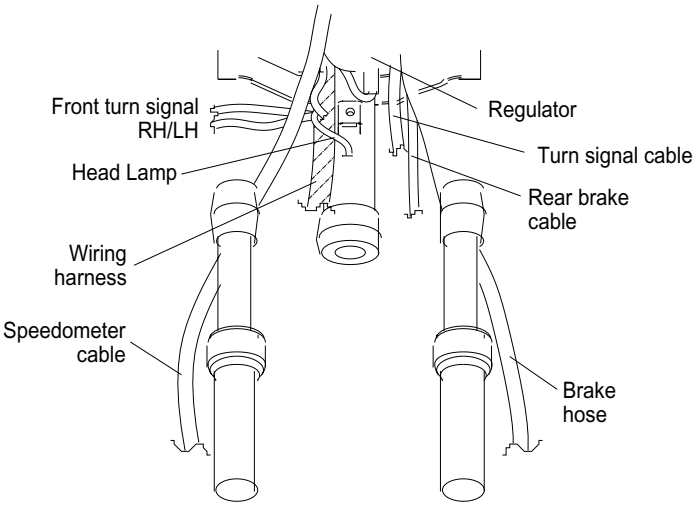
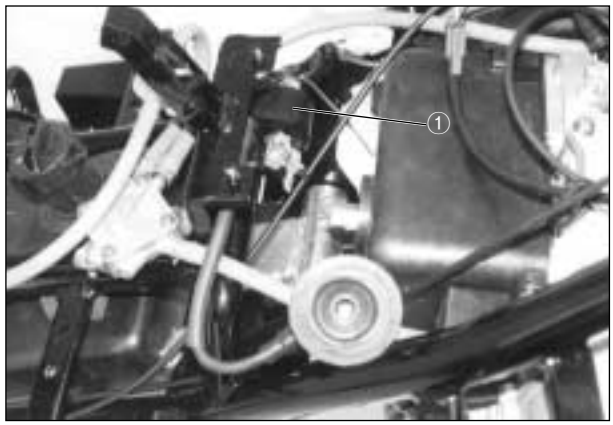
ELECTRICAL SYSTEM

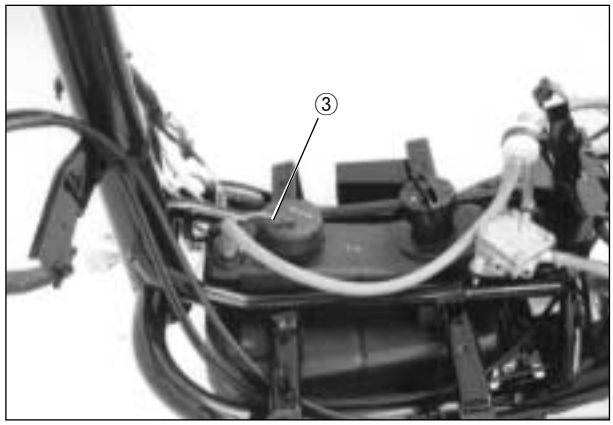
CONTENTS

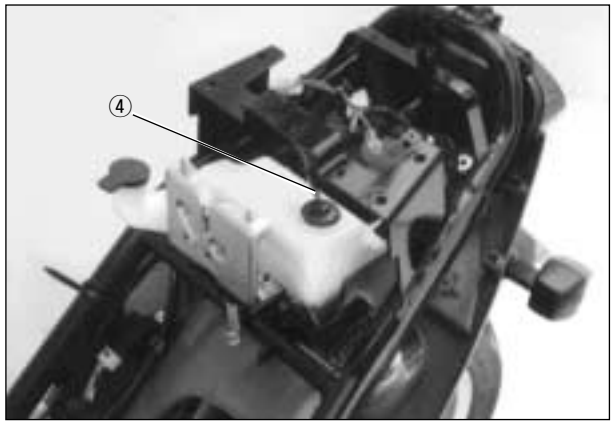
ELECTRICAL PARTS

① Ignition coil
② Thermolement assembly
③ Fuel level gauge
④ Oil level gauge

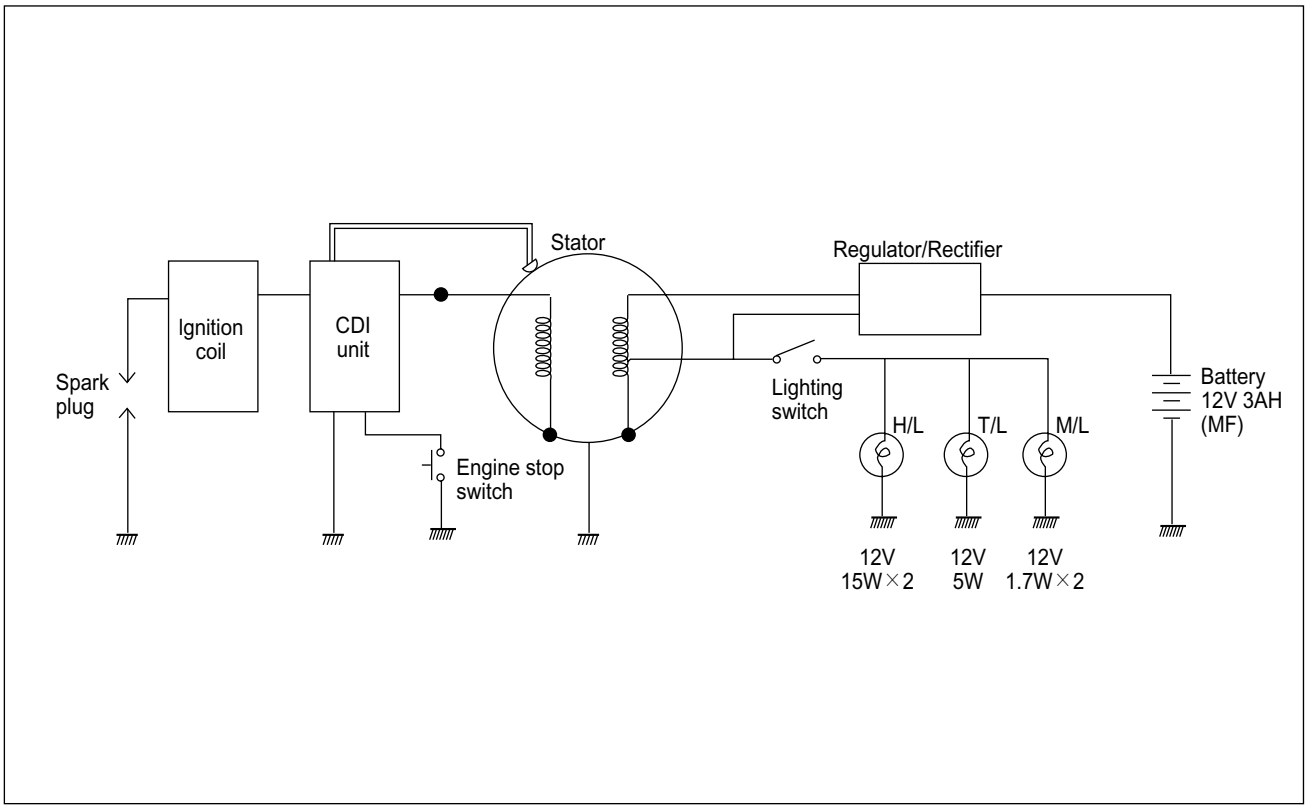








IGNITION/CHARGING SYSTEM

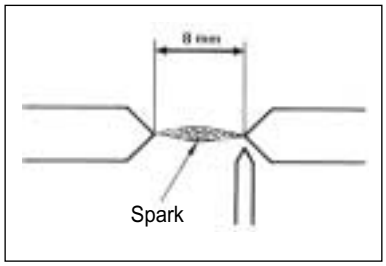


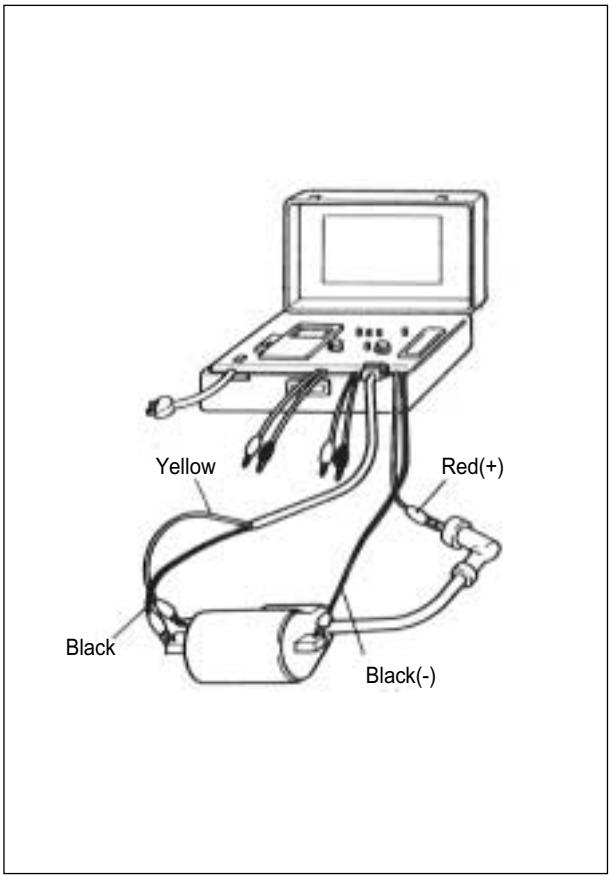
IGNITION COIL

- Check the ignition coil with electro tester.
- Test the ignition coil for sparking performance. Test connection is as indicated. Make sure that the three-needle sparking distance is at least 8mm. Test it at least for 5 minutes.

TOOL Electro tester : 09900-28106

Spark performance	Over 8 mm

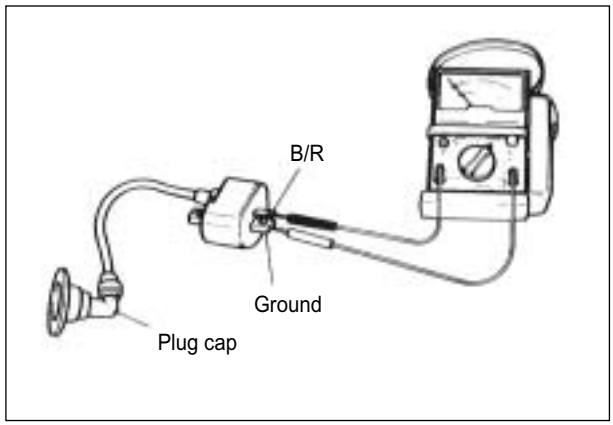




● Check the ignition coil with the pocket tester.

TOOL Pocket tester : 09900-25002

Ignition coil resistance	
Primary	0.19 ~ 0.24 Ω
Secondary	5.4 ~ 6.6 kΩ



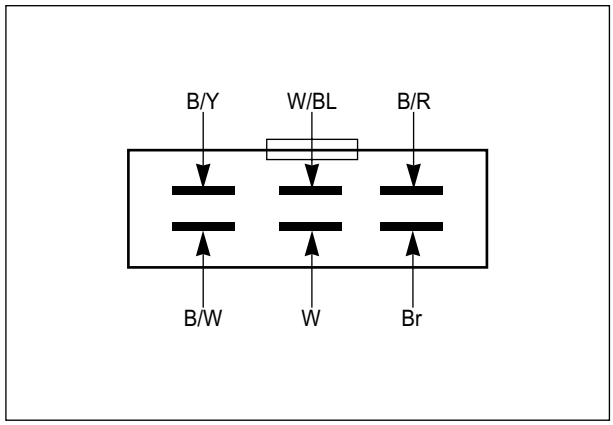
C.D.I. UNIT

● Using the pocket tester (R ×1 kΩ range), measure the resistance between the lead wire in the following table.

TOOL Pocket tester : 09900-25002

Unit : kΩ

		⊕ Probe of tester to :					
		B/Y	W/BL	B/R	B/W	W	Br
⊖ Probe of tester to :	B/Y		∞	∞	∞	∞	∞
	W/BL	14~18		7~10	3~4	7~10	5~7
	B/R	3~5	∞		∞	∞	∞
	B/W	7~11	∞	3~4.5		3~4.5	1.2~2.5
	W	12~16	∞	6~8	25~35		27~37
	Br	10~14	∞	5~7	1.2~2.5	5~8	

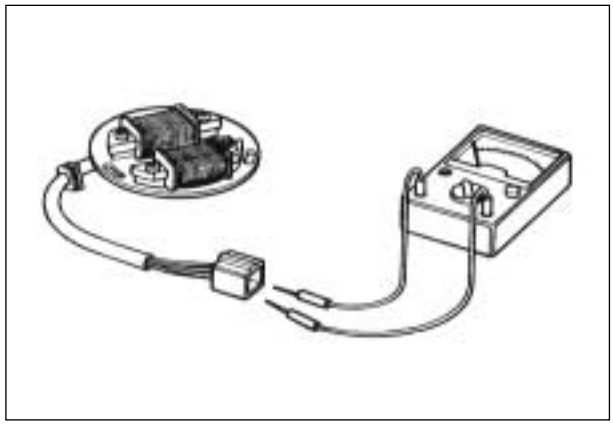


STATOR COILS

● Using the pocket tester, measure the resistance between the lead wire and ground. If the resistance checked is incorrect, replace the coil.

Unit : Ω

Stator coil resistance			
Lead wire of tester		Standard resistance	
⊕ (Red)	⊖ (Black)		
Y/W	Ground	Lighting coil	0.54 ~ 0.80 Ω
W/R	Ground	Charging coil	0.69 ~ 1.03 Ω
B/R	Ground	Exciting coil	220 ~ 260 Ω
Br	W	Pick-up coil	90 ~ 110 Ω



CHARGING OUTPUT CHECK

Start the engine and keep it running at 5,000 rpm with lighting switch turned "ON".

Measure the DC voltage between the battery terminal ⊕ and ⊖ with a pocket tester.

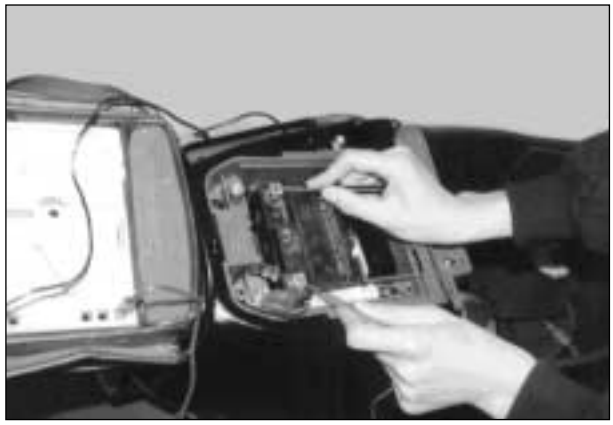
If the tester reads under or over following specification, check the no-lead performance or replace the regulator/rectifier.

⚠ CAUTION

When making this test, be sure that the battery is in fully-charged condition.

TOOL Pocket tester : 09900-25002
Engine tachometer : 09900-26006

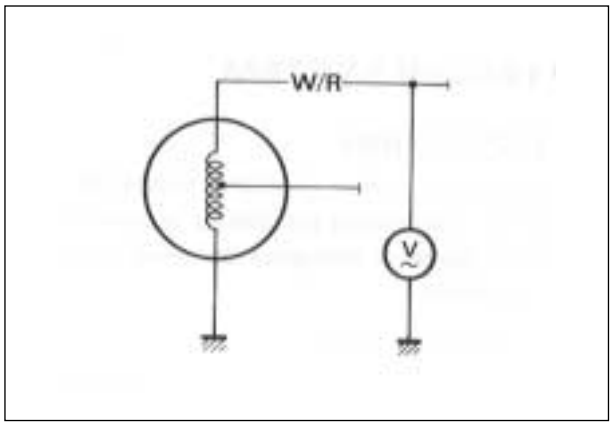
Standard charging output	13.0 ~ 16.0 V (at 5,000 rpm)



NO-LOAD PERFORMANCE OF A.C. GENERATOR

- Disconnect the magneto lead wire coupler.
- Start the engine and keep it running at 5,000 rpm.
- Using a pocket tester, measure the AC voltage between the three lead wire. If the tester reading is as follows, magneto is in good condition.

Standard no-load performance of A.C. generator	More than 17 V (at 5,000 rpm)



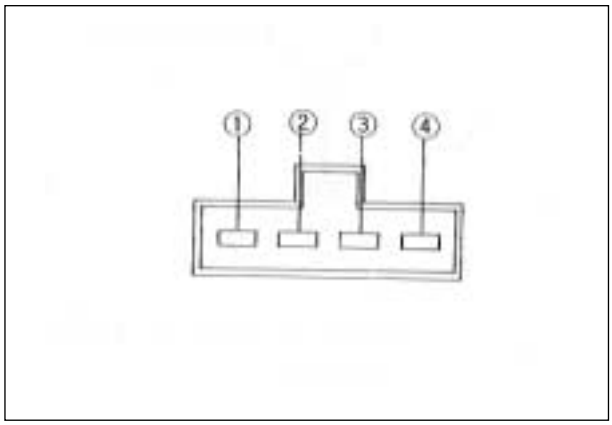
REGULATOR/RECTIFIER

- Disconnect the coupler.
- Using the pocket tester(×1kΩ Range), measure the resistance between the terminals as shown in the following table. If the resistance checked is incorrect, replace the regulator/rectifier.

TOOL Pocket tester : 09900-25002

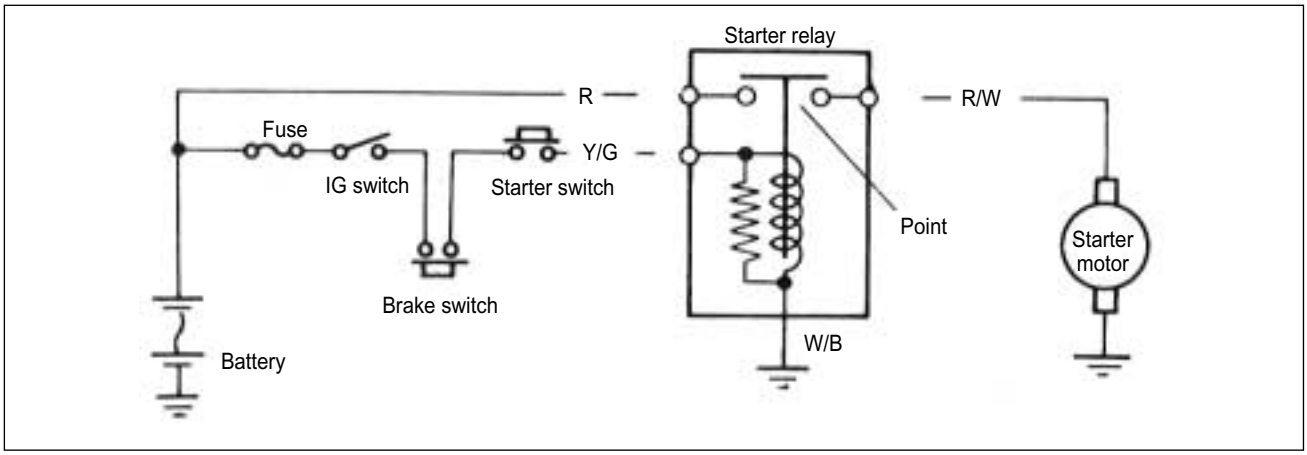
Unit : kΩ

		⊕ Probe of tester to:			
		1	2	3	4
⊖ Probe of tester to:	1		50 ~ 260	∞	∞
	2	50 ~ 230		∞	∞
	3	∞	∞		∞
	4	∞	∞	10 ~ 100	



STARTER SYSTEM

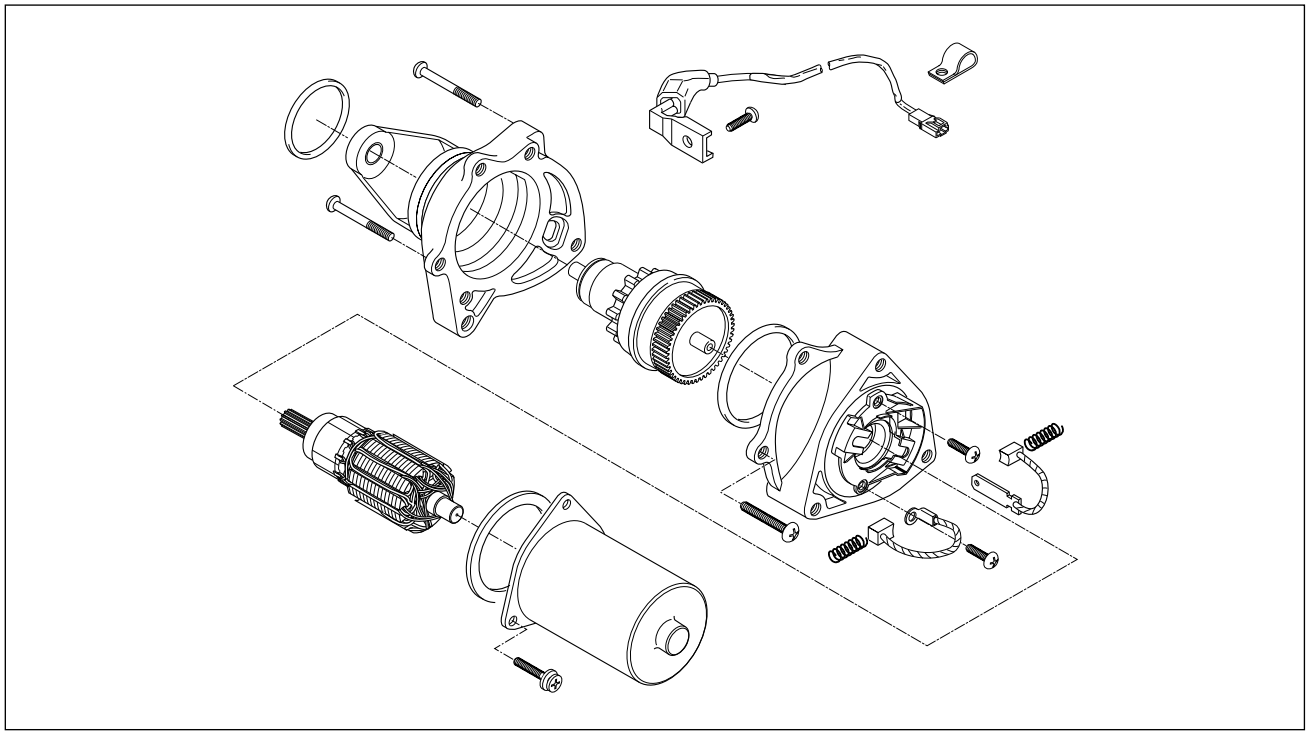
The starter system is shown in the diagram below: namely, the starting motor, starter relay, starter switch and battery. Depressing the starter switch (on the right handlebar switch box) while squeezing the front or rear brake lever energizes the relay, causing the contact points to close which connects the starting motor to the battery.



STARTING MOTOR REMOVAL AND DISASSEMBLY

Remove the starting motor.

Disassemble the starting motor as shown in the illustration.

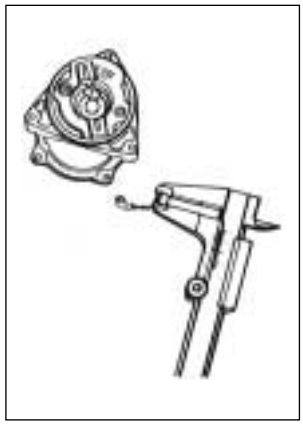


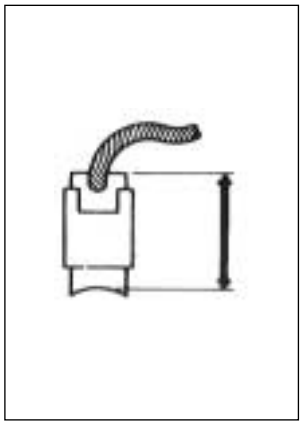
STARTING MOTOR INSPECTION

CARBON BRUSHES

When the brushes are worn, the motor will be unable to procedure sufficient torque, and the engine will be difficult to turn over. To prevent this, periodically inspect the length of the brushes and replace them when they are too short or chipping.

Carbon brushes wear	Service limit 4 mm



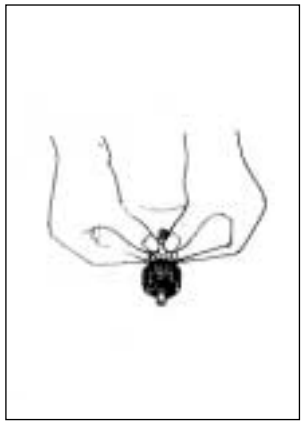


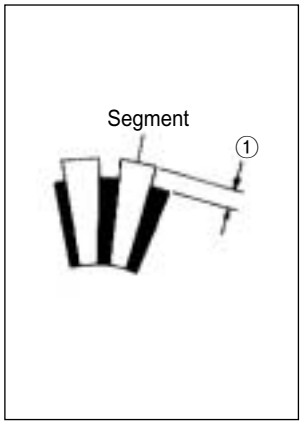
COMMUTATOR

If the commutator surface is dirty, starting performance will decrease. Polish the commutator with #400 or similar fine emery paper when it is dirty. After polishing wipe the commutator with a clean dry cloth.

Measure the commutator under cut ①.

Commutator under cut	Service limit 4 mm



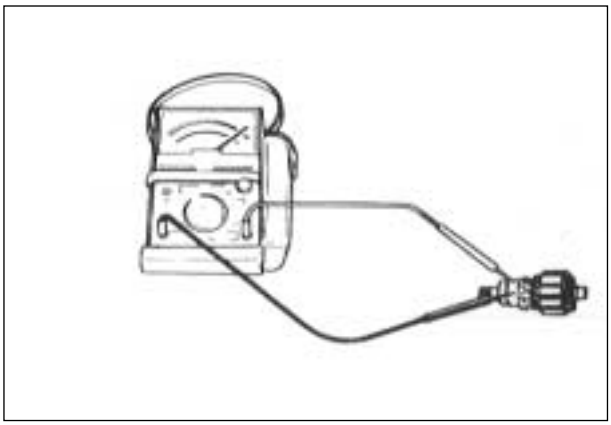


ARMATURE COIL

Using the pocket tester, check the coil for open and ground by placing probe pins on each commutator segment and rotor core (to test for ground)and on any two segments at various places (to test for open), with the brushes lifted off the commutator surface.

If the coil is found to be open-circuited or grounded, replace the armature. Continuous use of a defective armature will cause the starting motor to suddenly fail.

TOOL Pocket tester : 09900-25002

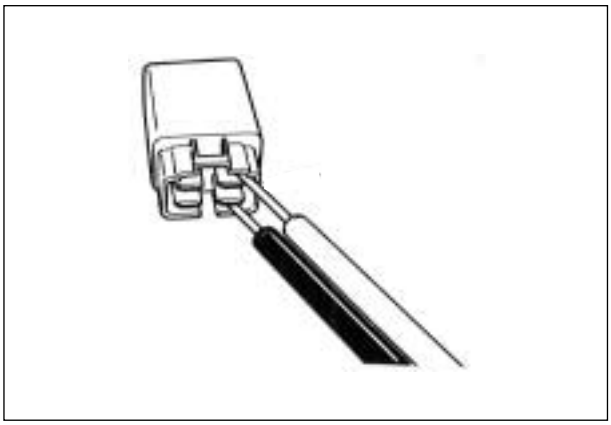


STARTER RELAY INSPECTION

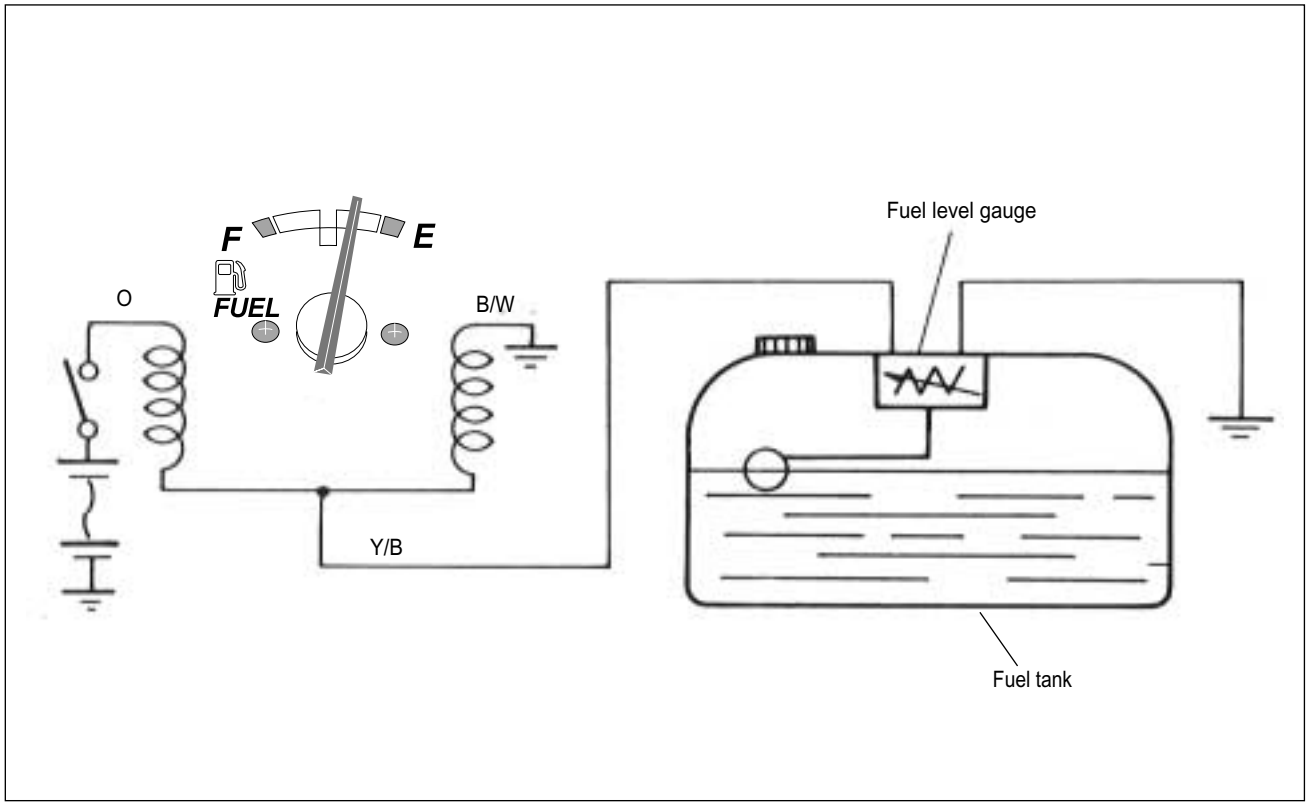
● Disconnect the starter relay lead wire coupler.
Check the coil for "open", "ground" and ohmic resistance. The coil is in good condition, if the resistance is as follows.

TOOL Pocket tester : 09900-25002

Starter relay standard resistance	0 ~ 70 Ω



FUEL LEVEL GAUGE

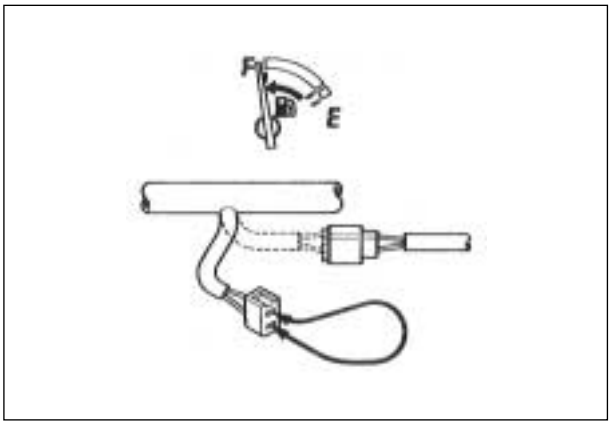


FUEL LEVEL METER/GAUGE

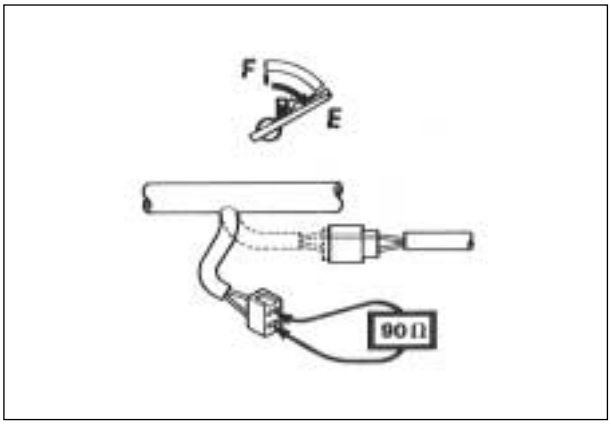
FUEL METER INSPECTION

To test the Fuel Meter two different checks may be used.

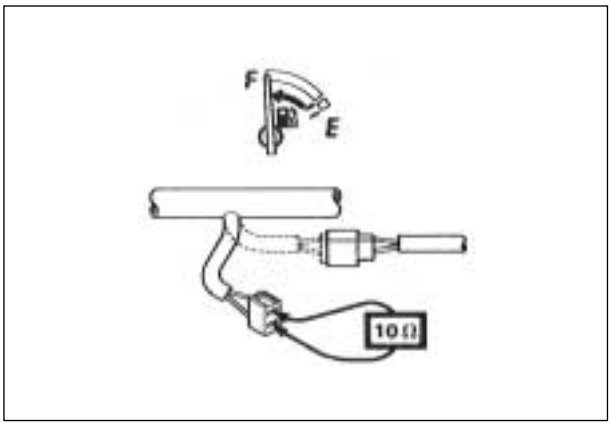
The first, and simplest test will tell if the meter is operating but will not indicate the meters accuracy throughout the range. To perform this test, lift the seat and remove the right frame cover, then disconnect the B/W and Y/B lead connector of the fuel gauge sending unit. Connect a jumper wire between B/W and Y/B wires coming from the main wiring harness. With the ignition switch turned ON, the fuel meter should indicate "F".



The second test will check the accuracy of the meter in the full and empty positions. Connect a 90 Ω resistor between the Y/B and B/W lead wires. The fuel meter is normal if its pointer indicates the E(empty) position when the specified voltage is applied to the circuit and if its pointer indicates the F(full) position when the resistor is changed to 10 Ω.

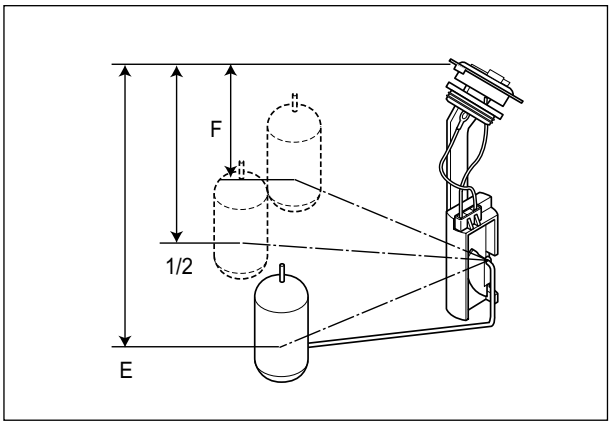


If either one or both indications are abnormal, replace the fuel meter with a new one.



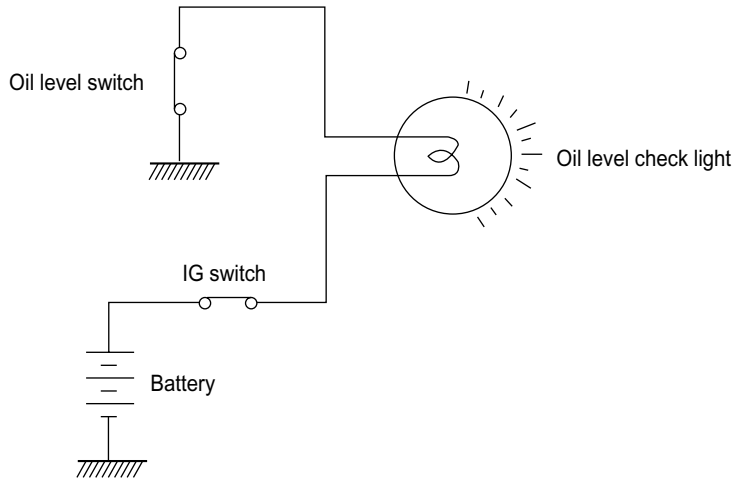
FUEL GUAGE SENDING UNIT INSPECTION

- Disconnect the lead wires coming out of the fuel gauge and check resistance of each position.
- If the resistance measured is incorrect, replace the fuel gauge assembly with a new one.
- The relation between the position of the fuel gauge float and resistance is shown in the following table.



Relation between the position of the fuel gauge float and resistance	
Float position	**Resistance**
F(Full)	10^{0}_{-6} Ω
1/2	38 Ω
E(Empty)	90^{+10}_{0} Ω

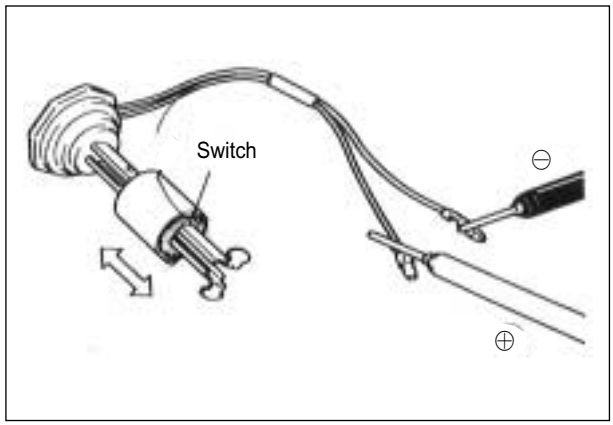
OIL LEVEL CHECK LIGHT



OIL LEVEL SWITCH INSPECTION

Check the oil level switch for continuity between the lead wire. If the tester does not show the value of 0 ~ 1 Ω when the switch ring is in bottom position, file the contact surface or replace the unit.

TOOL Pocket tester : 09900-25002

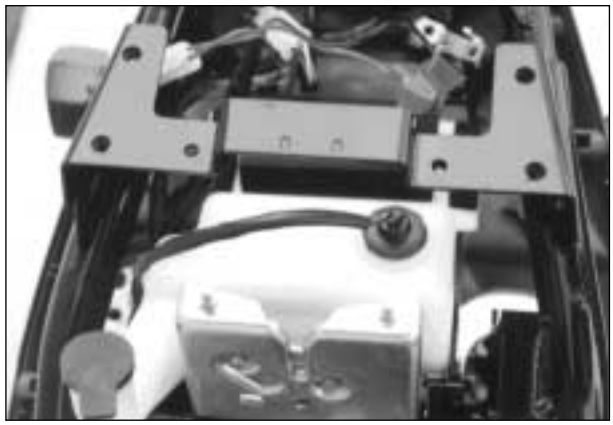


OIL LEVEL CHECK LIGHT INSPECTION

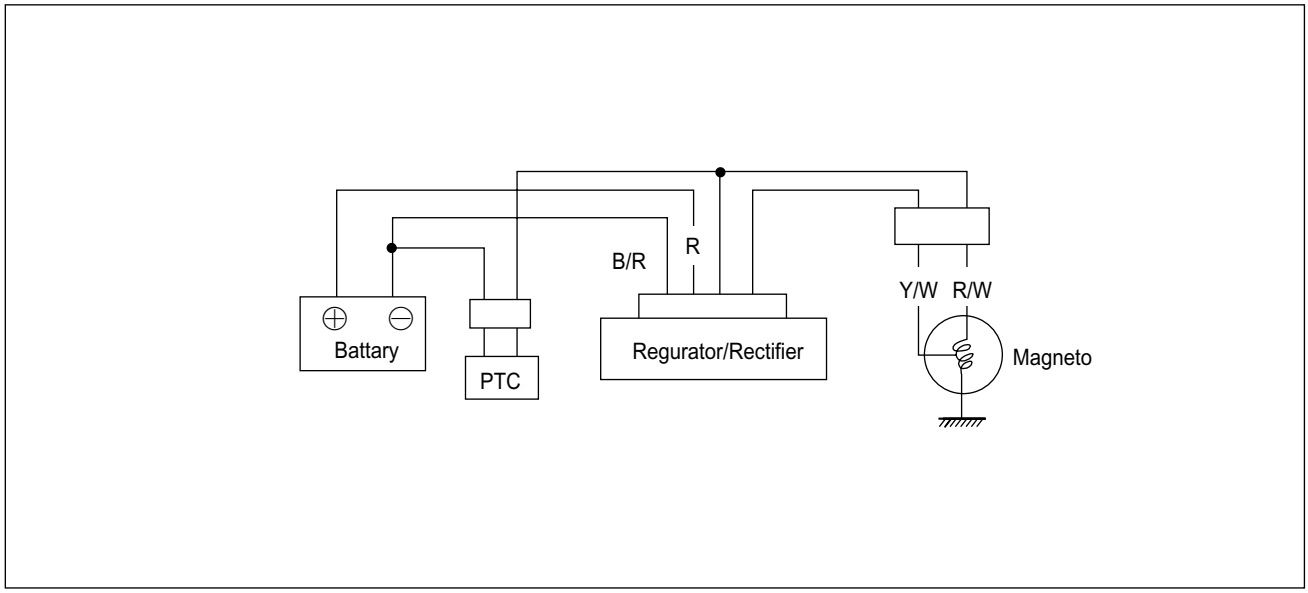
Disconnect the L/W and B/W lead connector of the oil level check light.

Connect a jumper wire between L/W and B/W wires coming from the main wiring harness. With the ignition switch turned ON, the oil level check light should flash.

If there is no flash, check the wiring harness continuity and the bulb blown out.



THERMOELEMENT

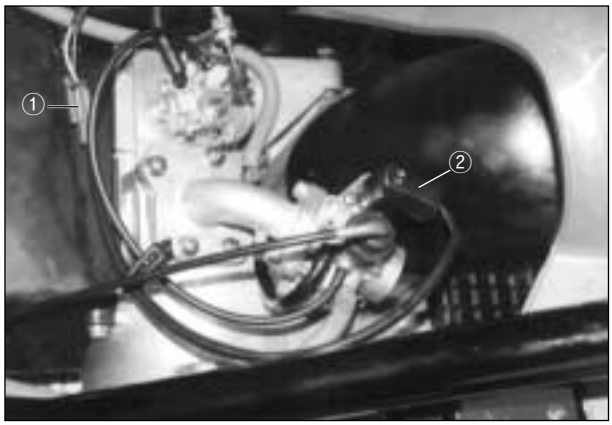


INSPECTION

- Disconnect the thermoelement coupler ①.
- Connect the thermoelement coupler ① to a 12V battery and touch the thermoelement ② to check the temperature being raised.
  The thermoelement ② should become heated to a temperature more than that of human body within five minutes. If not, replace with new one.

⚠ CAUTION

This check should be carried out when the carburetor is cold.



SWITCHES INSPECTION

Inspect each switch for continuity with the pocket tester referring to the chart. If it is found any abnormality, replace the respective switch assembly with new one.

TOOL Pocket tester : 09900-25002

WIRE COLOR

B	Black
L	Blue
G	Green
Gr	Gray
Sb	Light blue
Lg	Light green
O	Orange
R	Red
W	White
Y	Yellow
B/R	Black with Red tracer
B/W	Black with White tracer
W/B	White with Black tracer
Y/W	Yellow with White tracer
Y/G	Yellow with Green tracer
L/W	Blue with White tracer

LIGHTING SWITCH

	Gr	Y/W
ON	○--------	--------○
OFF		

STARTER SWITCH

	W/B	Y/G
ON	○--------	--------○
OFF		

FRONT AND REAR LAMP SWITCH

	O	W/B
ON	○--------	--------○
OFF		

TURN SIGNAL LAMP SWITCH

	Lg	Sb	B
L		○----------	----------○
.			
R	○----------	----------○	

HORN SWITCH

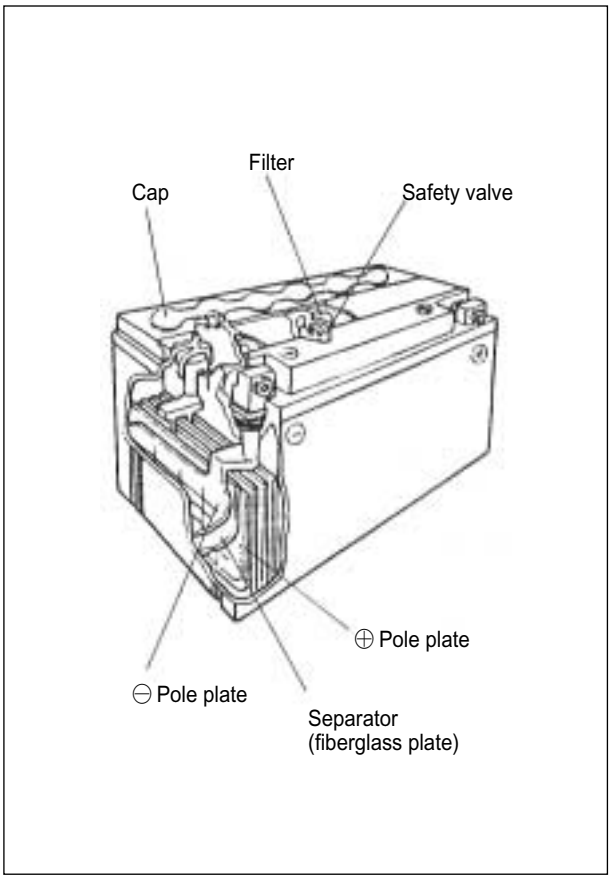
	B/W	G
ON	○--------	--------○
OFF		

IGNITION SWITCH

	B/W	B/R	R	O	L/W
LOCK	○------	------○			
OFF	○------	------○			
ON			○------	------○	
C	○------	------○	○------	------○	○

BATTERY

BATTERY	
Type	YT4L-BS
Capacity	12V, 3AH/10HR
Standard electrolyte S.G.	1.32(at 20℃)



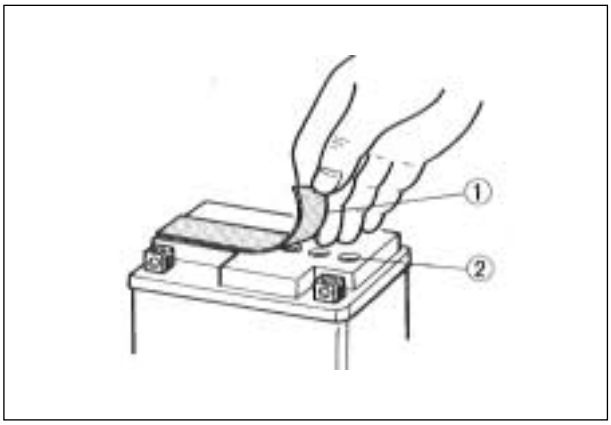
CAUTION OF BATERY ELECTROLYTE TREATMENT

- Pay attention that the battery electrolyte not be stain the chasis or the humanbody.
- If be stain the chasis or the humanbody, at once wash a vast quantity of water.
  When it be stained, clothes should come into being a hole or painting should take off.
  Be cured from a doctor.
- When the battery electrolyte was droped the surface of land, wash a vast quantity of water.
  Neutralize by hydroxide, bicarbonate of soda and so on.

INITIAL CHARGING

FILLING ELECTROLYTE

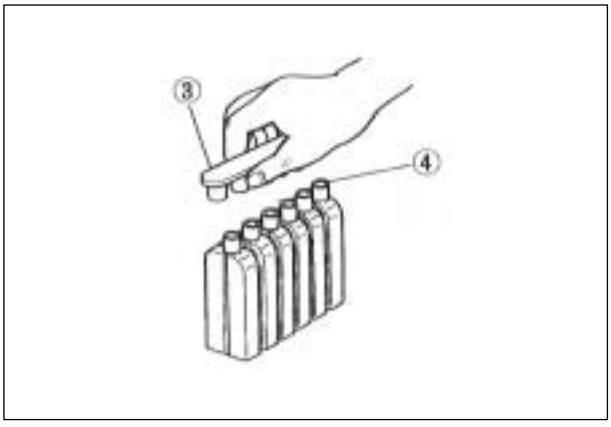
- Remove the aluminum tape ① sealing the battery electrolyte filler holes ②.



- Remove the caps ③.

⚠ CAUTION

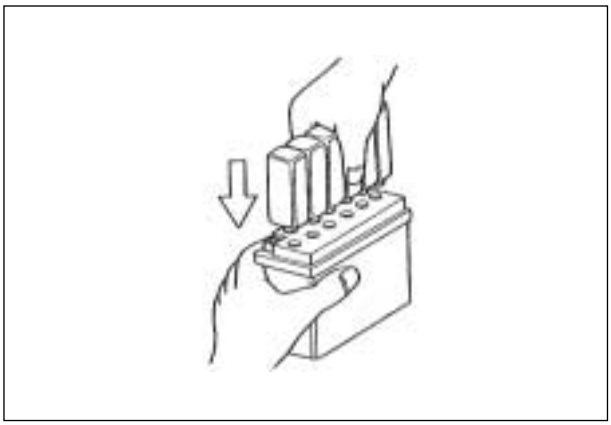
· After filling the electrolyte completely, use the removed cap as the sealed caps of battery-filler holes.
· Do not remove or pierce the sealed areas ④ of the electrolyte container.



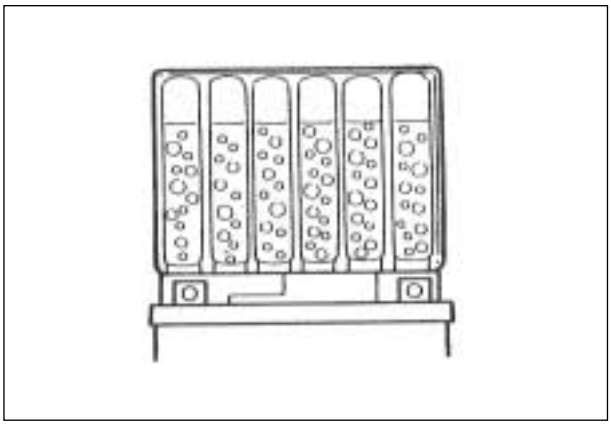
● Insert the nozzles of the electrolyte container into the battery's electrolyte filler holes, holding the container firmly so that it does not fall.

⚠ CAUTION

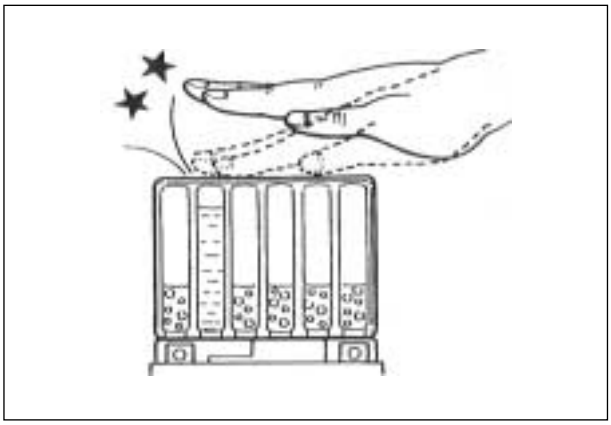
· Take precaution not to allow any of the fluid to spill.
· The electrolyte container insert at right angles so that it is not sloped.



● Make sure air bubbles are coming up each electrolyte container, and leave in this position for about more than 20 minutes.



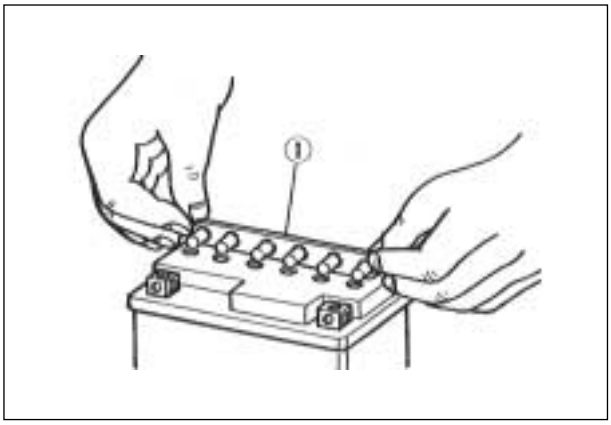
NOTE:
If no air bubbles are coming up from a filler port, tap the bottom of the two or three times.
Never remove the container from the battery.



● After confirming that the electrolyte has entered the battery completely, remove the electrolyte containers from the battery. Wait for around 20 minutes.
● Insert the caps ① into the filler holes, pressing in firmly so that the top of the caps do not protrude above the upper surface of the battery's top cover.

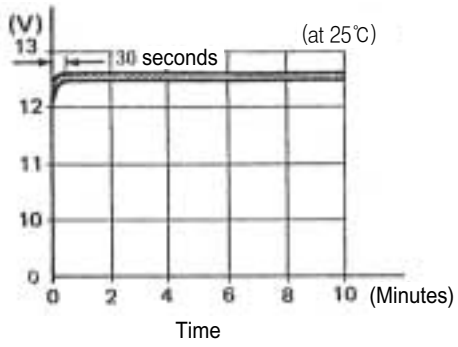
⚠ CAUTION

· Clean completely in case that the electrolyte is adhered at the filler hole.
· Once install the caps to the battery, do not remove the caps.



● Using the pocket tester, measure the battery voltage. The tester should indicate more than 12.5-12.6 V(DC)as shown in the Fig. If the battery voltage is lower than the specification, charge the battery with a battery charger.

NOTE:
Initial charging for a new battery is recommended if two years have elapsed since the date of manufacture.



CAUTION OF BATTERY TREATMENT

The battery is needed attention generally as occur flammability gas.
If does not, it should be explosion and severe accident.
Pay attention to the following points.

● Prohibit positively that come in contact with short, spark or firearms.
● The battery recharge where be well-ventilated wide place.
Prohibit positively at the shut tight room.

RECHARGING OPERATION

● Using the pocket tester, check the battery voltage. If the voltage reading is less than 12.0V(DC), recharge the battery with a battery charger.
● When recharging the battery, remove the battery from the motorcycle.
● Do the battery by standard charging usually.

BATTERY CHARGING CURRENT	
Standard	0.4A × 5~10 Hours
Fast	4A × 30 Minutes

● After recharging, wait for more than 30 minutes and check the battery voltage with a pocket tester.
● If the battery voltage is less than 12.0V, recharge the battery again.
● If the battery voltage is still less than 12.0V after recharging, replace the battery with a new one.

NOTE:
When a battery is left for a long term without using, it is subject to discharge. When the motorcycle is not used for more than 1 month(especially during the winter season), recharge the battery once a month at least.

⚠ WARNING

· Charging equipment of this motorcycle is designed for the MF(Maintenance Free) battery.
· No use except the specificated battery.